



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,600	01/30/2004	Norbert E. Yankielun	COE-568	5202

30046 7590 07/03/2006

HUMPHREYS ENGINEER CENTER SUPPORT ACTIVITY  
ATTN: CEHEC-OC  
7701 TELEGRAPH ROAD  
ALEXANDRIA, VA 22315-3860

EXAMINER

LU, TONY W

ART UNIT PAPER NUMBER

2878

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/767,600

Applicant(s)

YANKIELUN, NORBERT E.

Examiner

Tony Lu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This is in response to the amendment filed on 5/23/2006.

Applicant's arguments, see Applicant Argument/Remarks on pages 8-9, filed on 5/23/2006, with respect to the finality of the Office Action sent on 03/07/2006 have been fully considered and are persuasive. The finality of Office Action sent on 03/07/2006 has been withdrawn.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4,7,14,15,22 and 23, as understood by the examiner, are rejected under 35 U.S.C. 102(b) as being anticipated by Sayka et al US5743135.

With respect to claims 1,2,4,7,14,15,22 and 23, Sayka et al disclose a system(300) for monitoring and alerting changes by measuring optical reflections from a media(308) adjacent a part of said system comprising: an array of optical fibers(351-356), arranged vertically, attached to a support having a length, width, and depth(360, a rigid tube), each optical fiber in said array of optical fibers having an end exposed approximately orthogonal to said media(see fig.3) and said length of said support, wherein said array of optical fibers communicates a pre-specified level of detail as data regarding said changes from the reflections(read col.5, lines 4-51) detected by at least one photodetectors(380, optical receiver); at least one source of optical signals(320,

Art Unit: 2878

LED emits red light) in operable communication with each said optical fiber during the operation of said system; at least one optical coupler(340, optical bank), in operable communication with each of said optical fibers(see fig.3), is provided to connect each said optical fibers to said at least one source(320) and/or said at least one photodetectors; and at least one sub-system(320,330,370,380,390,392,394) in operable communication with each said optical fiber during the operation of said system, wherein said data are processed by said sub-system to provide measurement of and alerting to said changes, wherein the sub-system includes a processing and control device(390) connected to a display(392); and said change may be recorded and displayed via sub-system.

The additional language "situated in an unenclosed natural environment" added by the applicant has not been given patentable weight as it is a part of the preamble and an intended use of the system.

Sayka et al's system inherently performs claimed method step of claim 23 as it discloses all the limitations set forth above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135.

With respect to claim 13, per the above discussion, Sayka et al fail to teach an anchoring device.

Although Sayka et al lack a clear inclusion of an anchoring device, the use of an anchoring device to prevent vibrations or displacement of the system in order to provide better measurements and/or accurate results would have been obvious to one of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al with an inclusion of an anchoring device to prevent any movements and/or shifting of the system in order to provide a more reliable measurement results from the system.

With respect to claim 20, per the above discussion, although Sayka et al disclose a microprocessor(390) connecting to a display(392) but lack a clear inclusion of at least one multi-channel multiplexed data acquisition printed circuit board incorporating at least one analog-to-digital convert; and software loadable on a personal computer for processing said data, since it is known in the art that a computer system and/or microprocessor is a combination of plurality of semiconductor chips built by a plurality of electronics components with printed circuit board and any desired programmable software loadable onto the chips for acquiring desired data by the instruction of the program or software, it would have been inherently included, however, if not, it would have been obvious to one of ordinary skill in the art to modify Sayka et al accordingly in order to provide sufficient mean to process and/or manipulate signal and/or data obtained by the system.

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135 in view of Boffi et al US6373617.

With respect to claims 16-18, per the above discussion, Sayka et al fail to teach at least one of said optical signals are provided as a cyclical signal that is a square wave.

Boffi et al disclose an optical system having optical control beam having optical signals provided as a cyclical square wave(read col.8, lines 32-45).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al with the cyclical square wave signal taught by Boffi et al in order to provide more control to the performance of the optical signals. Further citation in claim 18 regarding three KHz cycle would have been obvious for similar reasons set forth in the above discussion.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135 in view of Keller US4544840.

With respect to claim 3, per the above discussion, Sayka et al fail to teach a multiplexer.

Keller discloses a fiber optic detector system having a multiplexer(604) connecting to a light source(300).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka by utilizing a multiplexer taught by Keller in order to provide a better management of the light and/or signals transmitted through the optical fibers.

Claims 5 and 6 are rejected under 35 U.S.C 103(a) as being unpatentable over Sayka et al US5743135 in view of Weiss US6356675.

With respect to claim 5, per the above discussion, Sayka et al fail to teach said optical fibers are plastic.

Weiss discloses a fiber optic system suggests use plastic optical fibers(col.2, lines 40-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al by utilizing plastic fibers taught by Weiss in order to provide easier mounting and/or installing of the optical fibers.

With respect to claim 6, per the above discussion, Sayka et al fail to teach said optical fibers have an index of refraction of approximately 1.492.

Weiss disclose the optical fibers have an index of refraction 1.492(col.2 lines 40-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al by utilizing an optical fibers having an index of refraction of 1.492 taught by Weiss in order to provide more control to the modulation of the light and/or signal in the optical fibers.

Claims 8,9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135 in view of Pellinen et al US5467194.

With respect to claims 8 and 9, per the above discussion, note that Sayka et al disclose the light reaching the photodetectors can be frequency filtered in order to enhance photodetectors' sensitivity but fail to teach a high pass filter and an amplifier.

Pellinen et al disclose in fig.5 a high pass filter(33) and an amplifier(32) in a signal processing system controlled by a microprocessor(40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al with inclusions of a high pass filter and an amplifier taught by Pellinen et al in order to filter out the unwanted signals, increase output signals to a desired level and provide a more accurate measurement results from the system.

With respect to claim 19, although Sayka et al lack a clear teaching of said photodetector is selected from a group consisting of a phototransistor and/or a photodiode, selecting a specific type of photodetectors would have been obvious to one of ordinary skill in the art in order to provide a long lasting life of performances to the photodetector.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the proposed system of Sayka et al and Pellinen et al accordingly in order to provide a compact design of the system.



Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135 in view of Sugiura et al US4927266.

With respect to claims 10 and 11, per the above discussion, Sayka et al fail to teach said sub-system comprises a power meter.

Sugiura et al disclose a optical system (see abstract) with optical power meter(102) for monitoring the optical output from a light source(101, read col.3, lines 5-25).

Although Sayka et al lack a clear inclusion of a power meter, using a known and available power meter to indicate the power and/or signals of said sub-system would have been obvious to one of ordinary skill in the electronic art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al with an inclusion of a power meter taught by Sugiura in order monitor the performance of the sub-system.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135 in view Keller US4544840 and further in view of Young et al US6698900.

With respect to claim 12, per the above discussion, Sayka et al fail to teach an umbilical cable.

Young et al disclose a projection and display system utilizing umbilical cable.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al utilizing umbilical cable taught by Young et al in order to provide a long life, stronger and/or durable connecting means.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al US5743135 in view of Bell et al US5491548.

With respect to claim 21, per the above discussion, Sayka et al fail to teach said coupler is a four-port optical splitter.

Bell et al disclose an optical signal measurement system having a four-port optical splitter(80) for managing optical signals.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al utilizing a four-port optical splitter taught by Bell et al in order to provide more control to the destinations of the signals.

### ***Response to Arguments***

Applicant's arguments filed 5/23/2006 have been fully considered but they are not persuasive.

With respect to applicant's argument, regarding claims 1,22 and 23, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. uses no moving parts, buried in a solid and/or sediments, used in scientific explorations of scouring activities to measure both the amount and rate of scour, sampling rate maybe low, know how an object's surface is covered or uncovered by a scouring or sediment event, and a bundle of parallel optical fibers, each of a different length and each having a right angle

bend at its terminus for detecting either scour or sedimentation at a pre-specified locations within an open body of water, etc. ) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, the differences between Applicant's invention and the Sayka et al device as pointed out on pages 11-13 have been noted. Please note that the argument regarding additional language "situated in an unenclosed natural environment" is not given patentable weight as it is only a part of the preamble and an intend use of the system.

Also, the claims 1,22 and 23 call for "each optical fiber having an end exposed approximately orthogonal to said media and said length of said support" in which case, Sayka et al disclose in figure.3 wherein each of the optical fibers(351-356) do have an end exposed approximately orthogonal to said media(308) and said length of said support(360).

With respect to applicant's argument, regarding claim 13, argues that there is no expectation for the provision of an anchoring device for Sayka et al's system. This is found not persuasive. Claim 13 calls for an "anchoring device" which can be any forms of devices and/or supports that can be used to secure and/or fix the placements of the components of the system. The components of Sayka et al's system such as the light source, photodetectors, display(392), microprocessor(390), alarm(394), coupler bank(340) and the fibers do need anchoring device(s) to introduce steadiness and/or fixed positions of the components in order to prevent any vibrations and/or

Art Unit: 2878

displacements of the components of the system which would cause possible malfunctioning and/or unreliable measurement from the system. Thus, an anchoring device for stabilizing purposes would yield beneficial performances to the system.

With respect to applicant's argument, regarding claim 20, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. a bundle of parallel optical fibers, each of a different length and each having a right angle bend at its terminus for detecting either scour or sedimentation at pre-specified locations within an open body of water.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to applicant's argument, regarding claims 16-18, argues that the provision of cyclical signals has little to do with more control to the performance of the source. This is found not persuasive. By having at least one source of optical signals provided as a cyclical signal, it is manipulating and/or controlling the signals/performances/output of the at least one source of optical signals. Therefore, the provision of cyclical signals and/or any other form of signals of the at least one source of optical signals in order to provide a desired optical signal/data/illumination depends on specific needs is providing more control of the performances/functionalities of the at least one source of the optical signals.

With respect to applicant's argument, regarding claim 3, argues that the multiplexer does not provide more control to the receiving and/or processing of the

Art Unit: 2878

signals. This is found not persuasive. The use of a known and available multiplexer as a switch for switching/manipulating signals/data is well known to one of ordinary skill in the art. By having switching capabilities, multiplexers do provide the maneuvers of switching, redirecting, altering and or allowing/blocking the transmission of signals, thus, the use of a multiplexer in an optical system does provide more control to the receiving and/or processing of the signals.

In response to applicant's argument that the purpose of a multiplexer is to reduce the complexity of a system by permitting separate functions to share a single device, thus reducing the expense, size and the complexity of the resultant system while providing fewer components to maintain and eliminating the possibility of failure in the components that have been omitted, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

With respect to applicant's argument, regarding claims 5, argues that the provision of plastic optical fibers has little to do with ease of mounting or installing. This is found not persuasive. It is known to one of ordinary skill in the art that plastics are easier to bend and/or alter in any desired directions. Therefore, plastic optical fibers do provide ease of mounting or installing when any adjustments and/or movements of the plastic optical fibers are needed.

With respect to applicant's argument, regarding claim 6, argues that the optical fibers with an index of refraction of 1.492 has little to do with control of the modulation.

Art Unit: 2878

This is found not persuasive. It is known in the fiber optics art that the pattern of the light travels in the optical fibers is affected by the index of refraction of the optical fibers, selecting a specific index of refraction does provide more control to how the light is traveled within the optical fibers, in particular the modulation of the light and/or signal in the optical fibers.

With respect to applicant's argument, regarding claims 8 and 9, argues that the high pass filter with an amplifier has little to do with accuracy of results. This is found not persuasive. The use of a high pass filter to filter out unwanted signals and/or components in order to obtain a desired and/or reduce the noise of the signals/components and then use an amplifier to increase an output signals/components to a sufficient level for detection/manipulation is known to one of ordinary skill in the electric art. Therefore, the use the high pass filter with an amplifier provide a more accurate/desired/proper measurement/signal/components from the system.

With respect to applicant's argument, regarding claim 19, argues that the provision of a particular version of photodetector has little to do with providing a compact design of the system. This is found not persuasive. There are different sizes of photodetectors, in particular, detectors such as photodiodes and/or phototransistors are generally more compact and smaller in size. Therefore by providing smaller and/or compact components of the system, it would promote the compact design of the system.

With respect to applicant's argument, regarding claim 10 and 11, argues that the provision of a power meter has little to do with monitoring the performance of the sub-system. This is found not persuasive. Using a power meter to monitor and/or track the performances and/or power level of any electrical components is known to one of ordinary skill in the electric art so that the expected result from the system is more reliable. Thus, the inclusion of a power meter in the sub-system having electric devices(microprocessor, display, alarm) does provide monitoring to the functionalities and/or performances of the sub-system.

With respect to applicant's argument, regarding claim 12, argues that the provision of an umbilical cable would be overkill for Sayka et al's system. This is found not persuasive. Umbilical cables are known in the art for their long-lasting and/or sturdiness properties. Selecting a specific type of cable for providing long lasting and/or sturdy components to the system would have been an obvious routine skill in the optic art for providing a more reliable components of the system. Therefore, it is not overkill as stated in the remarks, but to ensure the desired operation of the system for a longer period of time.

With respect to applicant's comment, regarding claim 21, regarding the provision of a particular version of a processor and coupler have been noted. The differentiation purposes as stated have not been found in the recitation of the claimed invention. Thus the same desired processing purposes of the modification would be obvious to one of ordinary skill in the computer art. The argument on pages 18-19 of the remarks,

regarding differentiation purposes, would have been moot for similar reasons set forth above.

Accordingly, the rejections set forth above are proper.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

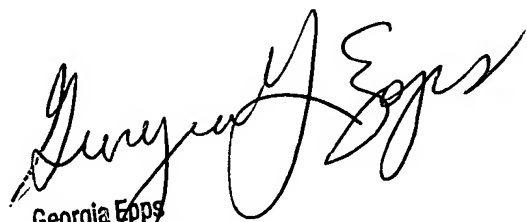
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Lu whose telephone number is 5712728448. The examiner can normally be reached on M-F 9:00am- 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 5712722328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2878

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be "J. Epps", with the letters "TE" written below it.A handwritten signature in black ink, appearing to be "Georgia Epps".

Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800